REMARKS/ARGUMENTS:

By this amendment, the specification has been amended (including the proffering of a substitute paragraph for the Abstract); all previous claims have been cancelled and substituted by Claims 25-35; and, a new Figure 2 is being submitted.

Relative to Paragraph 6 of the Office Action, a protrusion can form a channel if it is hollow as pointed out by the examiner. This has been clarified in the amendments.

As the amendments are significant, we have cancelled the original claims (Claims 1-23) and have replaced them with new Claims 24-35. We have limited Claim 24 by inclusion of the arc-shaped members and have clarified that the cylindrical protrusion objected to relative to now canceled Claim 6 is in fact a hollow cylindrical projection.

Figure 2 has been amended and the replacement sheet is attached with this response. The extraneous part number (20) in the original figure has been removed.

In brief, the objects of the present invention are:
1) to enable smoother rotation of a paint applicator by reducing frictional resistance between rotating elements;
and,
2) to provide a secure cover for the applicator.

Clarification of these two objects is not adding new matter as these objects are listed at the last paragraph of the Background, page 2, lines 5-9; paragraphs 2 and 3 of the Detailed Description, page 4, lines 12-22, of the present application.

The present invention is inventive, and distinguished from the prior art, by two main features. The first is the arc-shaped members to reduce resistance in the roller while achieving smoothness in use. The second feature is the large, liquid-tight cover to facilitate the filling and emptying of the roller without the need for a funnel.

With the two objects and the two inventive features in mind, we would like to respond to the examiner's Office Action below.

Rejection under USC 102

Anticipation by Powers, USPN 3,253,290

Paragraph 7 of the Office Action

The invention by Powers concerns a "self-wringing surface treating implement". The objects of the invention being to provide a simple, easily usable and manipulating self-wringing mop (column 1, lines 31-34), a roller type mop with means to wring out fluids from the impregnable surface and to arrest movement of the roller (column 1, lines 35-42), and a manually-operated means to arrest this movement (column 1, lines 57-67).

The focus of the invention is not on the roller as may be inferred from the scant description of the roller means and holder in column 2, lines 21-34. In addition, the emphasis of the invention on the wringing means may also be drawn from the two claims.

That the total area of the planar abutment surface is smaller than an axial cross-section of each holder mount, as observed by the examiner, is not relevant here. This is because the roller rides on the projecting trunnions (3) which are received by the loops (3a) of the arms (6a and 6b).

As can be seen in Figures 1 and 5, the side plates (2) of the roller do not contact the arms (6a and 6b). Thus, the presence of potentially friction-reducing arc-shaped members on the end plates (2) here has no bearing (no pun intended) on the rotation of the roller. In addition, the arc-shaped members are present only as a consequence of the spokes of the wheel-like side plates (2) used and are not intended by the inventor to reduce friction.

Therefore, unlike the object of the present application, we contend that there is no intention in the invention by Powers to reduce rotation resistance of the roller through the use of these arc-shaped members in USPN 3,253,290.

Accordingly, new Claim 24 replacing old Claim 1 has been crafted to limit the present invention to friction-reducing arc-shaped members disposed around the journal. By this claim, the present invention is clearly distinguished from the paint rollers of the prior art.

Anticipation by Jenking, USPN 435,606

Paragraph 8 of the Office Action

The invention by Jenking does not vary much from other roller applicators containing a liquid. The emphasis of Jenking's invention is that of even distribution of the liquid (water) through the use of a suitable absorbent material (page 1, lines 44-53). Little emphasis is placed on frame or handle (page 1, line 54).

One significant difference between the present invention and that of Jenking is that of the filler (port or opening) G of Jenking (Figure 1) and the liquid-tight cover 22b of the present invention (best seen in attached amended Figure 2). Unlike the filler G of Jenking wherein spillage of water has little or no consequence, the size of the channel and its cover 22b of the present invention is maximized (Figure 2) to facilitate the filling or emptying of the roller with paint. A flange (74, Figure 4) is provided to facilitate the filling or emptying of paint from the roller (Page 5, lines 7-14; page 6, lines 7-12).

To maximize the size of the channel (34, Figure 2) for ease of pouring paint into and out of the roller, the cover of the present invention is co-axial with the roller. A funnel is not needed with the present invention, unlike that of Jenking's where a funnel is clearly required despite not being mentioned.

Anticipation by Roux, USPN 596,090

Paragraph 9 of the Office Action

It would appear that Jenking (filed 1888, USPN 435,606 above) would have anticipated Roux (filed 1896) if not for the co-axially located stopper (12) and the roller supports (15) on which Roux's roller may rest. Thus, the arguments which we have raised in response to anticipation by Jenking also apply here to the patent by Roux.

Anticipation by Er, USPN 6,036,392

Paragraph 10 of the Office Action

The present invention is an improvement over USPN 6,036,392 by the same inventor, Mr Poh Leong Er. USPN 6,036,392 is for a paint roller incorporating an internal reservoir with the center of gravity of the reservoir close to the longitudinal axis of the roller. This invention affords the user good maneuverability with a feel similar to a paint roller without a reservoir (column 1, lines 67 to column 2, line 4).

Despite being an invention with reasonably good commercial success, USPN 6,036,392 does have some deficiencies that came to light some time after the product was introduced into the market. These include a less than ideal cover (6) but more importantly, unexpectedly high rotational resistance in use. The improvements disclosed in the present invention seek to address these deficiencies. These improvements, being common over the cited prior art, will be elaborated below.

Anticipation by Mallindine, USPN 3,588,264

Paragraph 11 of the Office Action

The paint roller invention of Mallindine is constructed of axially-separable components held in place by end closure members (column 1, lines 46-53; Figure 6). A funnel (19), an element of the invention, is required when filling the roller (column 2, lines 40-44).

USPN 3,588,264 was listed as a reference by Mr Poh Leong Er's earlier patent (US 6,036,392) and we feel that the present application, possessing inventive improvements over its earlier version, continues to be non-obvious over Mallindine's invention. The present invention is inventive both in the construction (fewer parts required) and in the method of filling the reservoir where the use of a funnel is obviated.

Anticipation by Kessler, USPN 4,458,399

Paragraph 12 of the Office Action

While the examiner has correctly pointed out that the holder abutment of Kessler's invention does have a planar abutment surface with a surface area which may be smaller than the holder mounts, no complementary holder mount is actually mentioned, shown or claimed.

However, if we assume that the complementary bearing holes of the holder mount fit the outwardly projecting bearing journal (36, column 3, lines 9-11), the arrangement of the end closure members will still reduce the mounting of the invention to that of the prior art. That is, it has a bearing journal or trunnion of a relatively small diameter.

While this arrangement may be suitable for application in the printing of pressure sensitive labels (column 1, lines 14-20), such a mounting arrangement is not advantageous when used in paint rollers. In addition, disassembly of the roller is required to fill it with ink.

Anticipation by Newman, USPN 6,519,800

Paragraph 13 of the Office Action

The invention of Newman is extremely close to that of Kessler (USPN 4,458,399, above) where the paint roller (16) is separable from the axles (48). Again, the differences from the present invention comprising that the axles/trunnions are of small diameter, and disassembly of the roller is required to fill it apply. Elaboration of these differences will be given below as they are common between the cited prior art and the present invention.

Differences of the Present Invention from the Cited Prior Art

Except for the earlier version of the present invention (USPN 6,036,392 Er), the other prior art inventions have axles, trunnions or journals that are of small diameter. In the art, such small diameters are meant to reduce the rotational resistance of the roller. Another possibility may be to reduce cost of manufacture as less material is required.

However, in the present invention and that of its earlier version (USPN 6,036,392 Er), the diameter of the journal is deliberately maximized. In addition to providing increased stability or smoothness when applying the paint, the large diameter of the channel (34, attached amended Figure 2; page 5, lines 9-12) facilitates the introduction or the decanting of paint.

This feature is novel and non-obvious as a close but conceptually-dissimilar invention (USPN 3,588,264 Mallindine) provides a funnel for this purpose. This underscores the conventional view that the diameter of the axle, trunnion or journal should be kept small for decreased rotational resistance in the prior art. This has been the direction in which the prior art has pointed for a hundred years.

However, the present invention points away from this direction by maximizing the diameter of the channel (34) to almost the diameter of the holder mount (100). The final diameter of the paint applicator is determined by the thickness of the paint absorbent material used.

Now, as mentioned above, while the large diameter of the channel affords ease of access to the reservoir and rotational stability, actual use has shown that means to reduce the area of contact between the respective contact areas will be desirable (page 5, lines 25-30). In the present application, this reduction is achieved by an inventive plurality of arc-shaped members (page 7, lines 1-8) and their equivalents.

That arc-shaped members are present in the invention by Powers (USPN 3,253,290) has no relevance here as those arc-shaped members are present as a consequence of the spokes of the end plates (2). These arc-shaped members also play no part in reducing friction as they do not come into contact with the arms (6a and 6b).

By the presence of these arc-shaped members, the present invention is also novel over its earlier version (USPN 6,036,392 Er). The other novel feature is that of an improved cover (22b; page 6 lines 7-22). The cover (22b) now has perimeter ridges 66 and 68 (best seen in Figure 4) that engage the internal circumferential ridge (38) of the inner wall (36; best seen in Figure 2) to ensure tight capping of the holder mount.

From these arguments, we respectfully contend that the present invention is novel over the cited prior art. We will however, amend the claims according, to better reflect the novelty of the present invention and to eliminate any perceived encroachment on the scopes of protection claimed by the cited prior art.

Rejection under USC 103

Non-obviousness over Kessler, USPN 4,458,399
Paragraph 14 of the Office Action
We respectfully contend that it is not an obvious matter of engineering to modify the shape of Kessler to contain arc-shaped members. As raised above, thoughts regarding the design of the complementary holder to the holder abutment of Kessler is speculation at best.

The obvious matter in engineering to reduce friction here is to use bearings, for example, ball bearings, and to enclose them in a circumferential raceway or groove. However, this will increase both weight and cost in the manufacture of the invention.

Another obvious matter would be to have a raised feature with a smaller surface area (such as that of Kessler's element 36). Unfortunately, such a feature will reduce the stability of the roller as it diameter at the area in contact is reduced and this reverts the invention to the axles/trunnions with small diameters of the prior art.

The arc-shaped members of the present invention is a non-obvious means of reducing rotational resistance while the spacing of the members around the circumference of the holder mount, maximizes stability of the paint roller in use. The arc-shaped members are not a mere change in the shape or form of the component, but are new and non-obvious improvements to the art.

Non-obviousness over Er, USPN 6,6036,392

Paragraph 15 of the Office Action

The painting tool of Er is similar to that of the present invention and this comes as no surprise given that it is the earlier version of the present invention. As respectfully pointed out above, the arc-shaped members and the addition of complementary ridges to better secure the cover are not obvious.

The field of paint rollers with internal reservoirs is a crowded one. Mallindine, in his patent of USPN 3,588,264 has pointed out in at the time of his application in 1969 that there are many patents disclosing paint rollers (column 1, lines 23-27). Despite this, patents continue to be granted for seemingly similar and obvious inventions, for example, that of Newman (USPN 6,519,800) and Kessler (USPN 4,458,399).

While we are not conceding that the present invention is non-obvious in the light of its earlier version, we are submitting that there is scope for incrementally small but non-obvious improvements to previous inventions. The improvements are evolutionary, not revolutionary. As such, we respectfully maintain that Claim 5 of the present invention directing to friction-reducing arc-shaped members is non-obvious over its earlier version.

Non-obviousness over Mallindine, USPN 3,588,264 in view of Powers, USPN 3,253,290

Paragraph 16 of the Office Action

We have refuted the presence of the unintentional arc-shaped members of Powers's invention above. As such, it is our humble opinion that there is not any obvious or valid combination of features between these two patents that would render the present invention unpatentable.

As for Mallindine's invention, the bearing holes (12a and 12b) through which paint introduced requires the aid of the funnel (12). It is obvious that that small diameters of the journal portions (14 and 15) of that invention are sufficiently small and do not require any improvements to reduce rotational resistance.

To recapitulate, the present invention is an improvement of an already maneuverable paint roller with internal reservoir. The frictional resistance is reduced by a plurality of non-obvious arc-shaped members disposed circumferentially around a large channel. This large channel allows ease of pouring of paint and is closed by an improved cover with ridges.

Taken together, we respectfully contend that the present invention is novel and non-obvious over the cited prior art. We have amended the description and claims according to better reflect these improvements and to better distinguish it from the prior art without the addition of new matter.

Nevertheless, we request the Examiner for additional opportunities to submit amendments or arguments should the amended application not be regarded as meeting the novelty and inventive requirements.

In view of the foregoing Amendment and remarks, it is respectfully urged that all pending claims are in condition for allowance, and such action as well as passage of this case to issue is respectfully requested.

If the Examiner has any further questions, or believes that a telephone interview would be helpful to the advancement of the prosecution of the subject application, a telephone call to the undersigned would be appreciated. Attached is Petition and Fee for extension of time for one month.

Respectfully submitted,

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12/18/03

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